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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,244

08/22/2006

Kimiyoshi Kobayashi

SEM-0012

6812

23353 7590 08/21/2008
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EXAMINER

PIGGUSH, AARON C

ART UNIT

PAPER NUMBER

2838

MAIL DATE

DELIVERY MODE

08/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,244	KOBAYASHI, KIMIYOSHI	
	Examiner	Art Unit	
	Aaron Piggush	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,9 and 11 is/are rejected.
- 7) ☒ Claim(s) 2,4,6,8,10 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/22/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1, 3, 7, and 9 are objected to because of the following informalities: The phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d). Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takimoto (US 2003/0067283) in view of Weinberg (US 6,262,558).

With respect to claims 1 and 3, Takimoto discloses a charger for charging a secondary battery through a charging unit configured to control input power to be constant by using an input source, having a relatively large impedance in a power-supply mode, comprising: a current-control circuit that is connected to the secondary battery (para 0015, 0018, and 0039 and Fig. 1), and a constant-power-reference-voltage control circuit that is connected between the current-control circuit and an input of the charger (para 0015-0020 and Fig. 2), wherein the constant-power-reference-voltage control circuit is configured so that, when an output of the charger is in a drooping state, by decreasing a reference voltage to increase supply power, constant power is obtained at a voltage determined by output-voltage-stabilizing control of the

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charger, and, when input power to the charger is in an excessive state, by raising the reference voltage, a reference value corresponding to the supply power is set (para 0067, 0017, 0020, 0047, and abstract).

However, Takimoto does not expressly disclose wherein the input source is a fuel cell or a solar cell.

Weinberg discloses a device with a charger that has a solar cell for the input source (abstract and Fig. 4, 5, and 9), in order to provide a means for supplying power to a battery and other loads wherein the power source is renewable and safe for the environment.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include a solar cell as the input source in the device of Takimoto, as did Weinberg, so that the device could use a renewable power supply that is safer for the environment and usable in a wide variety of locations.

4. Claims 5, 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takimoto (US 2003/0067283) and Weinberg (US 6,262,558), as applied to claims 1 and 3 above, and further in view of Narita (US 5,465,039).

With respect to claim 5, Takimoto discloses the control circuit further including a secondary battery provided at an output of the charger (battery is no. 101 in Fig. 1), and a current control circuit connected to the secondary battery, wherein the current control circuit is configured for performing control so that constant power output is achieved (para 0015 and abstract).

However, Takimoto does not expressly disclose wherein the battery is connected in parallel to an arbitrary load, wherein the current control circuit is configured so that when a current in the load decreases, a charging current flowing into the secondary battery is increased, and when the current in the load increases, the charging current to the secondary battery is decreased, whereby an output voltage is maintained at a set drooping voltage.

Narita discloses a power supply wherein the battery is connected in parallel to an arbitrary load, wherein the current control circuit is configured so that when a current in the load decreases, a charging current flowing into the secondary battery is increased, and when the current in the load increases, the charging current to the secondary battery is decreased, whereby an output voltage is maintained at a set drooping voltage (abstract, Fig. 1 and 2, and col 2 ln 53-61), in order to provide a means for maintaining stable constant power output while still supplying a proper amount of energy to the load and battery.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include a parallel arbitrary load and constant power control for the battery and load in the device of Takimoto, as did Narita, so that a more stable output power could be maintained while still supplying a necessary amount of power to both the battery and the load (helps achieve a quicker charging time while still supplying proper energy to the load).

With respect to claims 7, 9, and 11, please see the rejection of claims 1, 3, and 5. Furthermore, the DC-DC converter of Takimoto can be seen on the right side of the circuit of Fig. 1 (para 0067). Additionally, both of the secondary references also use DC-DC converters (no. 87 in Fig. 4 of Weinberg and at both the top of Fig. 1 and no. 34 in Fig. 2 of Narita).

Allowable Subject Matter

5. Claims 2, 4, 6, 8, 10, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 2 and 4 recite the charger according to claims 1 and 3 respectively, wherein the constant-power-reference-voltage control circuit includes two constant current circuits, an input-voltage detecting comparator, an output-voltage detecting comparator, and a reference-voltage capacitor, and the constant-power-reference-voltage control circuit is configured so that, when an output detected by the output-voltage detecting comparator is in a drooping state, by causing the reference-voltage capacitor to discharge through the constant current circuit to raise the output voltage, constant power is obtained at the voltage determined by controlling output voltage of the charger to be stabilized, and, when input power detected by the input-voltage detecting comparator is in an excessive state, by charging the reference-voltage capacitor through the constant current circuit, the reference value corresponding to the supply power is set.

Claims 8 and 10 recite the DC-DC converter according to claims 7 and 9 respectively, wherein the constant-power-reference-voltage control circuit includes two constant current circuits, an input-voltage detecting comparator, an output-voltage detecting comparator, and a reference-voltage capacitor, and wherein the constant-power-reference-voltage control circuit is configured so that, when an output detected by the output-voltage detecting comparator is in a drooping state, by causing the reference-voltage capacitor to discharge through the constant current circuit to raise the output voltage, constant power is obtained at the voltage determined

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by controlling output voltage of the DC-DC converter to be stabilized, and when input power detected by the input-voltage detecting comparator is in an excessive state, by charging the reference-voltage capacitor through the constant current circuit, the reference value corresponding to the supply power is set.

The prior art of record does not disclose the above limitations, nor would it be obvious to modify the art in such a manner. To clarify, the prior art may include a constant current circuit, various comparators, or a reference voltage capacitor; however, it does not include all of the components listed above carrying out the same functions, nor does any motivation exist for combining various prior art references to meet that subject matter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Piggush whose telephone number is (571)272-5978. The examiner can normally be reached on Monday-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Akm Enayet Ullah/
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2838

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